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IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1930

No. 68

MILLER BROS. COMPANY

Petitioner

against

LEKTOPHONE CORPORATION

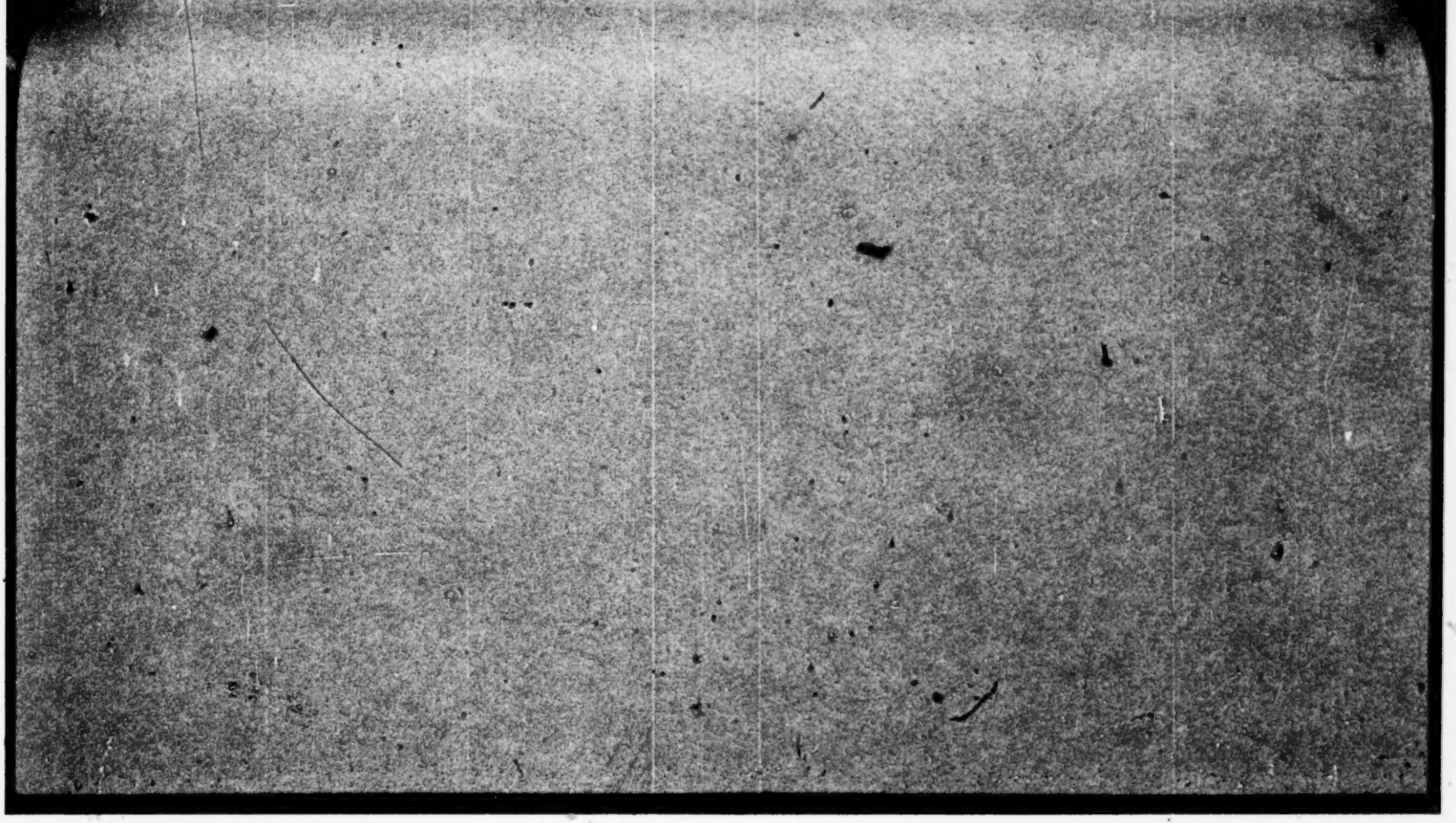
Respondent

BRIEF FOR PETITIONER

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STATUTE.

Section 4897 R. S. 7

IN THE

Supreme Court of the United States

OCTOBER TERM, 1930.

No. 68.

MILLER BROTHERS COMPANY,

Petitioner,

v.

LEKTOPHONE CORPORATION,

Respondent.

BRIEF FOR PETITIONER.

The present case is a patent infringement suit, before this Court on writ of certiorari issued to the Circuit Court of Appeals for the Third Circuit.

Opinions of the Courts Below.

The Court below (United States District Court for the District of Delaware) rendered an opinion (Rec. p. 13; 37 Fed. [2] 580), holding the patent in suit to be valid and infringed by petitioner. The District Court did not pass on the merits of the case, holding, in effect, that it was bound by the decision of its Court of Appeals in *Lektophone Corporation* v. *Brandes* (20 Fed. [2] 155), in a suit involving the same patent. An appeal to the Court of Appeals for the Third Circuit was filed by petitioner, but

because this Court had granted a writ of certiorari to the Circuit Court of Appeals for the Ninth Circuit in *Lektophone Corporation* v. *Rola* (34 Fed. [2] 764), petition for certiorari was filed in this case without awaiting the presentation to and decision by the Court of Appeals for the Third Circuit, so that the present case could be considered by this Court and disposed of at the same time the *Rola* case is considered and disposed of.

Jurisdiction.

The date of the judgment to be reviewed was February 12, 1930 (Rec. p. 16). The case is here on a writ of certiorari granted by this Court on May 5, 1930, on petition filed within three months of the date of said judgment. The jurisdiction of this Court is invoked under Judicial Code 240 (a), as amended by the Act of February 13, 1925. The cases believed to sustain the jurisdiction are:

White v. *Mechanics Securities Corporation, etc.*, 269 U. S. 283;

I. T. S. Rubber Company v. *Essex Rubber Company*, 272 U. S. 429;

Alexander Milburn Company v. *Davis-Bournonville Company*, 270 U. S. 390;

Concrete Appliances Company v. *Gomery*, 269 U. S. 177.

Assigned Errors to be Urged.

Of the errors assigned (Rec. p. 19) it is intended to urge the following:

(1) The District Court erred in decreeing the Hopkins patent to be valid.

(2) The District Court erred in decreeing infringement of any of the claims of the Hopkins patent by petitioner's structures.

(3) The District Court erred in failing to hold the Hopkins patent to be invalid under Section 4897 R. S.

Conflict of Decisions.

The chief ground presented by petitioner for the writ of certiorari issued by this Court was the conflict between the decision of the Court below (Rec. p. 13; 37 Fed. [2] 580), and the decision of the Court of Appeals for the Third Circuit by which the Court below concluded it was bound (20 Fed. [2] 155), and the decision of the Court of Appeals for the Ninth Circuit in *Lektophone* v. *Rola* (34 Fed. [2] 764).

Statement of the Case.

The suit is based on Hopkins patent No. 1,271,529, for a phonographic sound reproducing device, called in the patent an "acoustic device." The patent states on its face that it is a division of an application filed by Hopkins on July 14, 1913 (Rec. p. 317). The parent application issued as patent No. 1,271,527.

Both of these patents have been in litigation in the Second, Third, Sixth and Ninth Circuits.

Second Circuit Litigation.

The United States District Court for the Eastern District of New York held both of the Hopkins patents to be valid and infringed (*Lektophone* v. *Sylo*, 11 Fed. [2] 421). The United States District Court for the Southern District of New York held the parent patent (No. 1,271,527)

to be invalid, and the Hopkins patent here involved (No. 1,271,529) to be of very limited scope and not infringed by the structure before it (*Lektophone* v. *Western Electric*, 20 Fed. [2] 150). The Court of Appeals for the Second Circuit reversed the Eastern District Court in the *Sylo* case (16 Fed. [2] 7) and affirmed the Southern District Court in the *Western Electric* case (16 Fed. [2] 10) holding the parent patent to be invalid and the patent here in suit to be extremely limited in scope.

Third Circuit Litigation.

The District Court of New Jersey held both of the Hopkins patents to be invalid (*Lektophone* v. *Brandes*, 16 Fed. [2] 934). The Third Circuit Court of Appeals affirmed the District Court as to the invalidity of the parent Hopkins patent (1,271,527) but reversed the District Court as to the patent here in suit, and held it to be valid and infringed by the structures before the Court (*Lektophone* v. *Brandes*, 20 Fed. [2] 155). It was this decision which the District Court of Delaware concluded was so binding in effect upon it as to preclude its independent judgment on the merits in the present case.

Sixth Circuit Litigation.

The Court for the Southern District of Ohio, Western Division (Judge HICKENLOOPER), in an unreported decision (copies of which, however, will be supplied this Court), held that both of the Hopkins patents were so limited in scope, if valid, as not to be infringed by the structure before the Court (*Lektophone* v. *Crosley*). By plain inference, readily gained on reading the opinion, the Court was of the opinion that both patents were invalid but, finding non-infringement, such finding was dis-

positive of the case without necessitating a ruling on validity. However, the Court expressly disagreed with the reasoning and conclusion of the Court of Appeals for the Third Circuit. The decision of Judge HICKENLOOPER was appealed from by respondent, Lektophone Corporation, to the Court of Appeals for the Sixth Circuit, but the appeal, though argued and submitted, has not been disposed of by that Court.

Ninth Circuit Litigation.

The District Court for the Northern District of California held the parent Hopkins patent (No. 1,271,527) to be invalid (*Lektophone* v. *Rola*, 27 Fed. [2] 758). The patent here in suit (No. 1,271,529) was held by the Court to be extremely limited and hence not infringed by the structure before the Court (which structure was substantially identical in all material respects with petitioner's structures in the present case). Here again the Court expressly differed with the Court of Appeals for the Third Circuit in reasoning and conclusion, and, by plain inference, concluded that the Hopkins patent was invalid, although the ruling of non-infringement was dispositive of the case.

The Court of Appeals for the Ninth Circuit affirmed the decision of the California District Court (*Lektophone* v. *Rola*, 34 Fed. [2] 764).

Summary of Previous Litigations.

From the foregoing it will be seen that the parent Hopkins patent (No. 1,271,527) has been held to be invalid by all of the Courts that have passed upon the validity thereof, with the exception of the Eastern District Court of New York.

The divisional application, which matured into the patent in suit (No. 1,271,529) has, either directly or by inference, been held to be invalid by the New Jersey, Ohio and California District Courts and the Ninth Circuit Court of Appeals. The patent has likewise been held, if valid, to be so limited as to be not infringed by a structure substantially the same as petitioners' by the District Courts of the Southern District of New York, New Jersey, Ohio and California, and by the Circuit Courts of Appeals of the Second and Ninth Circuits. In other words, the Court of Appeals for the Third Circuit stands alone and opposed to the Courts of Appeals of the Second and Ninth Circuits and the District Court of Ohio. Only two decisions out of nine have held the patent in suit broad enough to cover petitioner's structures. One of these (Eastern District of New York) was reversed, and the other (C. C. A. 3rd) is followed only in one Circuit, viz.: the Third Circuit.*

Parties.

Throughout all of the foregoing litigations, and in the present case, the Hopkins patents were owned by Respondent, Lektophone Corporation. Petitioner, Miller Brothers (defendant below) is a Delaware corporation, and sells at retail various commodities, including electrical apparatus. The sale of two loud speakers (known as "Fada" loud speakers) intended to be used in connection with radio receivers for the reception of broadcast news and musical programs, constitutes the act of infringement on which the bill of complaint is based. The "Fada" loud speaker is manufactured by F. A. D. Andrea,

* Since dictating the foregoing, the United States Court for the Eastern District of New York has rendered an opinion in Lektophone Corporation v. Colonial Radio Corporation, likewise sustaining the patent, following the Circuit Court of Appeals for the Third Circuit and ignoring the decisions in the Sixth and Ninth Circuits and the effect of the opinion of its own Court of Appeals in the *Sylo* and *Western Electric* cases.

Inc., a New York corporation, at Long Island City, New York. F. A. D. Andrea, Inc. likewise manufactures the nationally distributed "Fada" radio receiving set.

The issues thus presented by the foregoing statement of facts are:

(1) Whether or not the Hopkins patent is valid; and

(2) Whether or not the Hopkins patent is infringed by the "Fada" loud speakers.

ARGUMENT.

Order of Argument.

In presenting petitioner's case we first raise a statutory bar to the validity of the patent. This is presented first because, in our opinion, it is dispositive of the suit. Therefore, the order of argument in behalf of petitioner will be as follows:

(1) The Hopkins patent is invalid under Section 4897 of the Revised Statutes.

(2) The Hopkins patent is not infringed.

(3) The Hopkins patent is invalid because of anticipation and want of invention.

FIRST POINT.

The Hopkins Patent Is Invalid Under Section 4897 R. S.

This defense was raised for the first time in the present case. Therefore, the question has not been passed upon in any of the previous litigations involving the Hopkins patent.

Section 4897 R. S. recited at the time the Hopkins application was filed—

"Any person who has an interest in an invention or discovery, whether as inventor, discoverer, or assignee, for which a patent was ordered to issue upon the payment of the final fee, but who fails to make payment thereof within six months from the time at which it was passed and allowed, and notice thereof was sent to the applicant or his agent, shall have a right to make application for a patent for such invention or discovery the same as in the case of an original application. *But such second application must be made within two years after the allowance of the original application.* But no person shall be held responsible in damages for the manufacture or use of any article or thing for which a patent was ordered to issue under such renewed application prior to the issue of the patent."*

The facts in this case pertinent to the foregoing section of the statute are as follows:

(1) The original application was filed on July 14, 1913 (Rec. pp. 324, 432).

(2) The application (containing claims therein numbered 25, 26 and 27 which were subsequently divided from the parent application and formed the basis of the patent in suit) *was allowed on April 11, 1916* (Rec. p. 413). The application then became forfeited for non-payment of the final fee on October 11, 1916.

(3) On March 22, 1918 (twenty days less than the two-year statutory period under Section 4897 R. S.) a petition to renew the application was filed (Rec. p. 414).

(4) On March 29, 1918 (twelve days less than the two-year statutory period, and before action by the Patent Office on the petition to renew), an amendment was filed

* Italics in this brief are ours unless otherwise stated.

voluntarily canceling Claims 25, 26 and 27 (Rec. p. 416) with the statement (Rec. p. 417)—

> "Claims 25, 26 and 27 have been canceled, as those claims will be incorporated, together with others, in a divisional application directed to the tympanum or diaphragm *per se*."

As above stated, the cancelation of these claims was not required by the Patent Office, but was *the voluntary act of the applicant.*

(5) On April 17, 1918 (*six days after the two-year statutory period*) the divisional application for the patent in suit was filed (Rec. pp. 288, 317), directed to and claiming the diaphragm *per se*, viz.: *the subject-matter of claims 25, 26 and 27*, **originally allowed on April 11, 1916.**

Thus, it will be seen that the application for the patent in suit was filed on April 17, 1918, *more than two years subsequent to the original allowance of the subject-matter thereof, viz.: April 11, 1916.* That is what is expressly prohibited by the provisions of Section 4897 R. S. The fact that the Commissioner of Patents exceeded his authority in granting the patent under such circumstances, constitutes a valid defense to a suit for infringement. *Weston Electrical Instrument Co.* v. *Empire Electrical Instrument Co., et al.*, 136 Fed. 599.

It will be noted that although Hopkins renewed his application for patent for the subject-matter of the patent in suit within two years of allowance of the claims directed thereto, those claims for the subject-matter of the patent in suit, viz.: the diaphragm *per se*, were voluntarily canceled on March 22, 1918. Therefore, *from March 22 1918, until April 17, 1918, there was no application pending in the Patent Office directed to and claiming the invention of the patent in suit.* The two year statutory period ex-

pired April 11, 1918. The divisional application, viz.: the application for the patent in suit, was filed on April 17, 1918, *after the two-year period allowed by Section 4897 of the statute.*

That the divisional application constituted a renewed application for patent for the subject-matter of the diaphragm *per se* cannot be seriously questioned. The Court of Appeals for the Second Circuit in *Dwight & Lloyd Sintering Co.* v. *Greenawalt* (27 Fed. [2] 823), said, at page 831, speaking through Judge LEARNED HAND in a somewhat analogous situation involving this section of the statute—

> "In the case at bar the original application was allowed on March 14, 1908, before any of the 'ignition' patents in suit had been divided out. It was renewed on February 17, 1910, 13 days after patent 1,433,350 had on February 4th been divided out. *The division was itself a renewal of the application, so far as concerns the inventions which it contained*, and, as it was within 2 years after allowance, it was seasonable. The divided application was thereupon itself allowed on May 26, 1911, but was permitted to lapse, supposedly because of failure to pay the statutory fee. It was renewed on April 26, 1912, 11 months after the allowance of May 26, 1911, but over 4 years after the allowance of March 14, 1908.
>
> "If the division is to be treated as a step in the one continuous application, then the case is directly within our ruling in Weston Electrical Co. *v.* Empire Electrical Co. (C. C. A.) 36 Fed. 599. There we held that the phrase in Revised Statutes, Sec. 4897 (35 U. S. C. A. Sec. 38; Comp. St. Sec. 9443), 'after the allowance of the original application', meant its first allowance, and that an applicant might not indefinitely withhold his patent in terro-

> rem, by tacking successive periods of 2 years at his pleasure, meanwhile making such amendments as would keep it alive. Considering, as we do, the division as not a new application and not the 'original application', that rule applies equally to this situation. We can see no conceivable reason why a division should, as regards this matter, be treated in another way than any other amendment of which it is only an instance."

This Court, in *Chapman* v. *Wintroath*, 252 U. S. 126, in discussing the effect of the two-year limitation appearing throughout the various sections of the patent statutes, stated, with respect to Section 4897 (at p. 136):

> "Section 4897 of the Revised Statutes (Act of July 8, 1870, 16 Stat. at L. 202, chap. 230, Sec. 35, Comp. Stat. Sec. 9143, 7 Fed. Stat. Anno. 2d ed. p. 188), in dealing with the renewal of an application in case of failure to pay the final fee within six months of notice that a patent has been allowed, provides that another application may be made for the invention 'the same as in the case of an original application'. But such application must be made *within two years* after the allowance of the original application."

After referring to a similar two-year provision under Section 4920 R. S., this Court then summarized, with reference to the two-year provision (p. 136):

> "Thus through all of these statutes runs the time limit of two years for the filing of an application, there is no modification in any of them of the like provision in Rev. Stat. Sec. 4886, as amended, *and no distinction is made between an original and a later or a divisional application, with respect to this filing right.*"

We submit as obvious, therefore, that the application for the patent in suit, having been filed more than two years subsequent to the first allowance of the subject-matter thereof, during and at a time when there was not pending in the Patent Office an application for a patent directed to that subject-matter, the patent is invalid because of the provisions of Section 4897 R. S. The evils which that section of the statutes sought to cure are present in full force in the present instance. It is quite apparent that Hopkins sought to expand his patent unduly by filing a voluntary, so-called "divisional application" wherein he separated the sound reproducer *per se*, from its phonographic actuating mechanism, after the practice sometimes attempted in the case of reissue patents. By so doing, he attempted to expand the divisional patent beyond what was originally intended to be granted by the claims which were allowed in the parent application. Under these circumstances the Statute should be strictly applied.

The invalidity of the Hopkins patent, because of this statutory bar, apparently escaped unnoticed in the previous litigations involving the patent. Specifically, it was not called to the attention of the Court of Appeals for the Third Circuit, and we confidently assert as our belief that had it been called to its attention, that Court would not have held that the Hopkins patent was valid.

If this Court comes to the conclusion that the Hopkins patent is invalid because of Section 4897 R. S., the case is disposed of, and the remaining points presented in this brief require no consideration.

SECOND POINT.

The Hopkins Patent Is Not Infringed.

We go from the statutory defense to the question of infringement, before considering the other reasons why the Hopkins patent is invalid, because lack of infringement is so evident that this defense, likewise, is dispositive of the case wholly irrespective of whether or not the patent is valid. In order to pass on the question of infringement it becomes necessary, of course, to understand the subject-matter of the patent and the monopoly claimed thereby.

Subject-Matter of the Hopkins Patent.

By comparing the single sheet of drawings of the Hopkins patent in suit (Rec. p. 316) with Figure 3 of the drawings of the parent application (Rec. p. 434) it will be seen that the disclosures are identical. Inasmuch as the patent in suit is stated to be a division of the parent application (Rec. p. 317, lines 94 to 103, inclusive), and inasmuch as the prosecution of the parent application constitutes part of the file history of the patent in suit, it is believed that the matter of consideration of the Hopkins disclosure will be simplified by referring to the original patent insofar as it is pertinent to the present controversy.

The invention is stated to relate:

> "to instruments which reproduce sounds, *such as the talking machine and the phonograph*, and is particularly directed to the attainment of a direct propagation in free air *from a record* of self-sustaining sound waves substantially corresponding to *the original recorded sounds* in intensity or am-

> plitude as well as in pitch and timber, as distinguished from an initial generation of violent air disturbances in a confined space and a subsequent transformation of such disturbances into self-sustaining sound waves by means of the megaphone or trumpet, commonly employed with most existing machines" (patent p. 1, lines 13 to 26, Rec. p. 437).

Again, it is stated (patent p. 1, lines 73, *et seq.*):

> "It is an object of the present invention to regenerate the *recorded* sounds *directly from the record*, without the interposition of a confined body of air and without the employment of a restrictive transformer, such as a horn."

Continuing, the specification points out in the succeeding paragraph:

> "*The 'sound regenerator,'* in the case of the present invention, *comprises a tympanum* of relatively great area freely exposed to unconfined air, in which the sounds are to be propagated, and a mechanical transmission which faithfully transmits *the vibrations produced by the record*, etc."

(The transmission feature constitutes the subject-matter to which the parent application was ultimately confined.)

The specification then continues (patent p. 1, line 95, Rec. p. 437):

> "*The invention consists, in providing a tympanum of novel construction*, which is capable of responding to the high frequency vibrations employed in the reproduction of sounds, and of imparting these vibrations to a large body of air; *in providing a suitable mounting for this tympanum to permit it to exercise its function;* and in providing a vibration transmission for receiving the vibratory move-

ment *from the record* and transmitting this movement to the tympanum without change of character and appreciable loss of energy."

The patent in suit, in lieu of the foregoing paragraph, states as follows (patent p. 1, line 94, Rec. p. 317):

> "*The invention consists, briefly, in the provision of a tympanum of novel construction,* which is capable of responding to the high frequency vibrations employed in the reproduction of sounds, and of imparting these vibrations to a large body of air; and it is to be considered as a division of the invention shown and described in my prior application, renewed March 22, 1918, No. 224,048."

(The application thus identified is, of course, the parent application which matured as patent No. 1,271,527.)

The patent then proceeds to described a *phonograph* which, referring to Fig. 3 of the drawing (Rec. p. 434, or Rec. p. 316) consists of the usual rotatable table F on which is supported a disc phonograph record, with a stylus needle resting thereon to travel in the groove of the recorded sound. The needle is mechanically connected by levers to the apex M, of a paper cone L, *shaped from a single piece of material* so as to have a *plane peripheral portion* l, and a *cone portion* l^1. The edge of the *plane peripheral* portion l, is clamped between heavy metallic rings K and K^1, which rings, clamped together, are supported by the spider arms J.

The paper cone L, with its plane peripheral portion, is called in the patent a "tympanum" and, as is pointed out in the specification of the patent (p. 2, lines 73, *et seq.*, Rec. p. 318) *consists of a single piece of material, circular in shape,* so formed or shaped that its *central portion* constitutes a cone, and the *peripheral portion* constitutes

a flat plane, the peripheral edge of which is tightly clamped between the "two ponderous rings" (patent p. 2, line 59, Rec. p. 318).

The operation of the device, thus shown and described, is as follows: Vibrations imparted to the stylus or needle by the recorded sound in the groove of the disc record of the phonograph, are imparted to the apex of the cone portion of the tympanum, causing the entire tympanum (both the cone portion and peripheral portion) to vibrate and reproduce the sounds corresponding to the recorded sounds on the phonograph record. It will thus be seen that the Hopkins patent is directed to *a particular type* of acoustic device *for reproducing recorded sound from a disc phonograph record.*

Petitioner's Structures Charged to Infringe.

The Fada loud speakers before the Court under the charge of infringement, are known as "Fada No. 14 loud speaker" and "Fada No. 15 loud speaker." They differ from each other only in size. To avoid any confusion therebetween they will be hereinafter referred to as the small Fada structure and the large Fada structure.

The construction of the Fada loud speakers can be plainly seen from the physical apparatus before the Court, as well as from Plaintiff's Exhibit No. 5, Rec. p. 451, where the undisputed dimensions of the two devices are given. The Fada loud speaker is employed as the reproducing device of a radio receiving set. *It is used in an art entirely foreign to the phonograph art.* The use of the Hopkins device in the radio art is not even remotely suggested by the Hopkins patent. Indeed, Hopkins admitted that he never contemplated its use in radio (XQ62, Rec. p. 228). The Fada speaker is electrically actuated by received

wireless signals. It is excited by a local source of current. Such a locally excited loud speaker is known in the radio art as a "dynamic" loud speaker. It is designed to be used, and is used in practice, within a resonance chamber or cabinet where the surrounding air is confined (Rec. pp. 53, 54). The sound producing mechanism consists of a frustrum of a cone, viz.: a cone with its apex cut off. The free edge of the cone frustrum is secured to a porous cloth rim, one edge of which is detachably fastened to an annular metal ring by means of a circular wire extending around the annular ring, and lying in a groove thereof. The ring is located in front of the cone frustrum, and is substantially V-shaped in cross section. The Fada cone frustrum is supported at its rear by three springs.

It may be noted that the Fada loud speaker is substantially identical with the Rola loud speaker before this Court in *Lektophone* v. *Rola*, the only material difference being that the Rola loud speaker employs a leather rim positioned between the metal ring and the cone frustrum, whereas Fada employs a porous cloth rim.

In addition to the radically different uses to which the Hopkins and Fada devices are put, the following outstanding structural differences will be readily apparent upon inspection:

(1) Hopkins employs a *cone*, *i. e.*, a converging circular structure with an apex. A cone, in the true sense of the term, is necessary for the operation of the Hopkins Device.	(1) The Fada structure employs a frustrum of a cone, *i. e.*, a converging circular structure *without an apex*.
(2) Hopkins employs as his sound reproducing element, a cone provided with	(2) Fada employs no plane peripheral portion of sound reproducing mate-

a plane peripheral portion formed of the same piece of vibratile material.

rial. On the contrary, Fada employs a rim of porous cloth which does not vibrate to produce sound but actually *absorbs* sound (Rec. pp. 42, 43).

(3) The peripheral edge of the Hopkins sound producer is clamped between ponderous rings, and the support of the cone is thus secured.

(3) In the Fada structure, the sound producer is supported at its center by three springs, and is *not* clamped at its peripheral edge by anything (Rec. pp. 48-50).

The Claims of the Hopkins Patent.

We will now refer to the claims of the patent (Rec. p. 319).

1. It will be seen that all of the claims specify, in one form or another, an acoustic device *comprising a tympanum rigidly supported or mounted at its periphery.*

Let us refer to the Hopkins patents and the file histories thereof to ascertain what is meant by the term "tympanum" as used in the claims, for it is the "tympanum" that is clamped at its periphery.

On page 2 of the original specification as filed (Rec. p. 328, near bottom of page), it is stated:

> "*The 'sound regenerator'* in the case of the present invention *comprises a tympanum* of a relatively great area freely exposed to the air in which the sounds are to be propagated, as such," etc. * * *

Substantially the same language appears in the patent in suit as issued (p. 1, l. 73 *et seq.*, Rec. p. 317).

Again, on page 3 of the original application (Rec. p. 329), the following statement appears:

> "*The invention consists in providing a tympanum of novel construction* which is capable of responding to the high frequency vibrations employed in the reproduction of sounds," etc. * * *

Substantially the same language is employed in the patent in suit as issued (p. 1, l. 94, Rec. p. 317).

Again, on page 6 of the original application as filed (Rec. p. 332), appears the following language (at the bottom of the page):

> "*A tympanum L of light vibratile material* has an *annular plane peripheral portion l*, the outer edge of which *peripheral portion l*, is tightly gripped between the ponderous rings K, K[1], and a *central conical portion l'* rising from the inner edge of the annular plane *peripheral portion*."

The language of the patent in suit as issued is substantially the same (Patent p. 2, l. 72 *et seq.*, Rec. p. 318).

Finally, on page 7 of the application as originally filed (Rec. p. 333, near bottom of page), it is stated:

> "*It is of vital importance that the tympanum be made of crisp, strong material*, having considerable rigidity within itself, *and it is also of vital importance that the tympanum as a whole* be extremely light and have as little inertia as possible without a weakening effect. The tympanum is shown of conical form with a smooth surface, and this has been found to be very satisfactory. The conical shape is given the tympanum so that shocks or vibrations impressed upon the apex of the cone in a direction towards its base will move the whole cone bodily, the strains being imparted edgewise of the material and no wave motions being set up in the thin material of the cone. The curvature of the walls of the cone preclude the setting up of waves

> in the material *and the intended object, a simultaneous movement of the whole conical portion of the tympanum, is obtained.*"

This identical language appears in the patent as issued (Patent, p. 2, l. 103, Rec. p. 318).

Summarizing the foregoing, it will be seen:

1. The asserted invention of the patent is the novel construction of the "tympanum."

2. The "tympanum" as a whole is the "sound regenerator" and is made of light vibratile material.

3. The "tympanum" is formed of one piece, and is depressed in the center so that it has *a conical portion* terminating in an apex, and *a plane peripheral portion* forming a flat rim or ring at its periphery.

4. The conical shape is given to the central portion of the tympanum, as stated,

> "so that shocks or vibrations impressed upon the apex of the cone in a direction towards its base *will move the whole cone bodily*, the strains being imparted edgewise to the material and *no wave motions being set up in the thin material of the cone*. The curvature of the walls of the cone preclude the setting up of waves in the material and the intended object, the simultaneous movement of the whole *conical portion of the tympanum*, is obtained" (Patent, p. 2, l. 113, Rec. p. 318).

From the foregoing it will be quite apparent that the term "tympanum" can only be applicable to *the sound reproducing element*, viz., the single piece of vibratile material shaped so as to have a plane peripheral portion and a conical portion. The patent specifications, as well as the drawings preclude any other interpretation.

Applying this definition to the first element of all of the claims it will be seen that the Fada structures do not employ "a tympanum rigidly supported at its periphery." The tympanum in the Fada structure, *i. e.*, the light vibratile material constituting the sound reproducer, is the paper forming the cone frustrum. The paper is *not* "rigidly supported at its periphery." Instead, it is *movably* connected to the sound absorptive porous cloth ring. It would not operate successfully if it *was* rigidly supported at its periphery. Its support is effected by the three springs at its base (Rec. pp. 49, 50). Thus, at the outset, it is quite apparent that neither of the Fada structures infringes any claim of the Hopkins patent.

2. Claims 1, 2, 3, 5, 6 and 7 also recite that *the tympanum must exceed nine inches in diameter.* Having in mind, as above established, that the tympanum consists of the light vibratile sound producing member, a reference to Plaintiff's Exhibit 5 (Rec. p. 451) shows that the diameter of the tympanum of the Fada structures (designated by the dimensional line b) in the large speaker is *eight and one-half inches*, and in the small speaker is, *seven inches.* Thus, instead of having a tympanum "exceeding nine inches in diameter" within Hopkins' claims, both of the Fada structures employ a tympanum *less than nine inches in diameter*, which Hopkins expressly disclaimed.

We might pause here to consider various aspects of this dimensional limitation in the Hopkins claims.

The Hopkins application as originally filed, contained the following statement on page 7 of its specification (Rec. p. 333):

> "IF SATISFACTORY REGENERATION OF SOUNDS FROM A RECORD IS TO BE HAD, *the whole diameter of the tym-*

> *panum, that is, the diameter of the aperture in the rings K, K', should exceed nine inches* in order that the conditions may be fulfilled which are called for by correlation existing between the range of wave frequencies of the sounds which must be regenerated by a machine of this character and the wave tension called for by the sound conductibility of free air."

Substantially the same language is included in the patent in suit as issued (p. 2, line 79, Rec. p. 318).

In arguing against a rejection of the Patent Office, on page 9 of the amendment filed December 5, 1913 (Rec. p. 361) the applicant presented the following statement:

> "Applicant has practically demonstrated that, *to effect direct regeneration from the record of the sounds, a light, vibratile tympanum of substantially nine inches in diameter or greater* MUST *be employed* in order to obtain faithful reproduction."

Again on page 10 of the argument (Rec. p. 362) appears the following:

> "*The dimensions of the diaphragm and of the conical portion thereof*, as set forth in claims 15 to 20 inclusive, *are* ESSENTIAL *elements in a direct sound regenerator*, but they are not essential in sound boxes which employ horns or trumpets as do all of the references which have been cited against these claims. *This has been demonstrated by the applicant by actual trial.*"

The Patent Officer Examiner in his rejection of February 7, 1914 (Rec. p. 378) stated:

> "Claim 16 is rejected on the references and reasons of rejection of claim 14. The size of the diaphragm is held not a patentable limitation. Note, however, that Lumiere discloses a diaphragm exceeding nine inches in diameter."

Again, on March 4, 1916, the Examiner rejected the claims as being indefinite. He stated (Rec. p. 405):

> "The statement in some of the claims that the diameter exceeds nine inches is not believed to be sufficiently definite. If it is immaterial what the size is within a considerable range, then it is a mere question of expediency, or selection of any size one desires for any loudness, and would not involve invention."

In answer to this rejection, by an amendment filed March 28, 1916, Hopkins argued (Rec. p. 408):

> "*It is* ESSENTIAL *to the success of applicant's machine that the tympanum be of large area and that the base of the vibratile portion thereof exceed nine inches in diameter, and furthermore that the peripheral edge of the tympanum, exterior of the vibratile portion, be rigidly secured or tightly gripped between the rings of the supporting frame. These definitions of the* ESSENTIAL *characteristics of the invention have been included in the claims by the amendments aforesaid,* and said claims are, therefore, believed to be allowable."

From the foregoing, we see, therefore, that all of the claims of the Hopkins patent (except Claims 4 and 8) expressly require as an element, a vibratile sound-producing element (tympanum) *exceeding nine inches in diameter.* Throughout the prosecution of the case, this element has been characterized as an *essential* element to the Hopkins invention, and as *essential* to the successful operation of the Hopkins phonograph reproducer.

Referring to the undisputed dimensions of the Fada structures before this Court (Rec. p. 451), the dimension of the vibratile sound-producing member (b) is in one instance seven inches, and in the other, eight and one-half

inches, and hence, not within the Hopkins claimed monopoly.

3. All of the claims of the Hopkins patent likewise specify that the tympanum have "a conical *portion*." Obviously, this language describes the Hopkins structure wherein his tympanum of light vibratile sound-reproducing material is shaped from one piece of material so as to have a conical *portion* and a plane peripheral *portion*. In the Fada structures, only a frustrum of a cone is used. It has no plane peripheral *portion*. It has no conical *portion*. It has no *portions* at all. It is a single piece of uniform shape. To come within this language of the Hopkins claims it would be necessary, like Hopkins, to shape or deform a piece of vibratile sound-reproducing material, so as to form a peripheral *portion* and a conical *portion*. Petitioner's structures do not and cannot conform to this language. Therefore, while this language reads on and describes the Hopkins device, it does not read on and does not describe the Fada structures.

4. Claims 3, 6 and 7 of the patent have the added limitation that the altitude of the conical *portion* of the tympanum must be substantially one-quarter of the diameter of its base.

With respect to the added element, here again, no response is found in the Fada structures. Referring to Plaintiff's Exhibit 5 (Rec. p. 451), it will be seen (first with respect to the large speaker) that the altitude of the cone (the dimension *e*) is 4 inches. The diameter at its base (dimension *b*) is 8.5 inches. Therefore, the ratio is 4:8.5, or substantially $\frac{1}{2}$, *instead of substantially* $\frac{1}{4}$, as required by the claims. With respect to the small cone, the altitude (*e*) is 2.75 inches. The base of the small cone is 7 inches, giving the ratio 2.75:7, which, though not quite

½, is materially greater than the ¼ specified by the claims.

5. Claims 5, 6 and 7 specify, in one form or another, a support having a circular aperture exceeding nine inches in diameter. The metallic ring in the Fada structures (which is not a *support* for the tympanum) has an aperture (dimension *g*, Rec. p. 451) which is 8¼ inches in the large-size speaker and 6 25/32 inches in the small size speaker. Obviously, therefore, neither of the Fada speakers is within these claims.

6. Claims 4 and 8 do not *expressly* include the dimensional limitations contained in the other claims. It is for this reason that the argument was advanced in the Court below, in behalf of respondent, that these claims are not limited dimensionally. With this assertion we do not agree, even though, as has been pointed out, the claims are, in fact, limited in other respects to structural details not embodied in the Fada speakers.

We submit that Claims 4 and 8 are, in fact, limited to the minimum dimensions irrespective of whether or not those dimensions are numerically expressed in the claims.

The dimensional limitations, expressly appearing in the other claims of the patent, are not set out in the patent as optional. On the contrary, throughout the prosecution of the case, and in the patent itself, as has been hereinbefore pointed out, the dimensions have been set forth as *essentials* of the invention.

The Court of Appeals for the 2nd Circuit (16 Fed. [2] 7, p. 7) in the *Sylo* case stated (at p. 10):

> "The patentee points out that *it is essential to the success* that his device have a tympanum of a large area, and that the base of the vibratile portion thereof exceed nine inches in diameter, and further

that the periphery edge of the tympanum exterior of the vibratile portion be rigidly secured or tightly gripped between the rings of the supporting frame. These requirements of the essential characteristics of the invention were included in the claims. And the claims are thus limited. White *v.* Dunbar, 119 U. S. 47, Sargent *v.* Hall, 114 U. S. 63."

Again Judge HICKENLOOPER, in his unreported decision in the *Crosley* case, pointed out:

"*The form, shape size, material and proportions were all of the very essence of his invention.* The necessity of restricting the edge or base of the cone against deformity was not of the essence because it was old. The details of shape and dimensions pertain especially to the inventive step rather than to mere environment, were so considered by the patentee and so precisely claimed. *To the size, shape and proportions thus disclosed the patentee is limited by the prior art and the very essence of his invention.* (Cases cited.)

"That Hopkins himself so considered the nature of his invention is also disclosed by the contents of the file wrapper. Claims of ultra-broad scope having been repeatedly rejected on reference to Stroh, English, Brown, Kraemer, etc., in view of Lumiere and the Patent Office opinion that they were too indefinite and that 'the size of the diaphragm is held not a patentable limitation,' the applicant inserted into the claims all the specific and detailed limitations as to form and shape. In his response to official action of March 4, 1916, received in the Patent Office March 28, 1916 (File Wrapper, p. 86) he says:

'It is essential to the success of applicant's machine that the tympanum be of large area and that the base of the vibratile portion thereof exceed nine inches in diameter, and furthermore that the peripheral edge of the tympanum, exterior of the

vibratile portion, be rigidly secured or tightly gripped between the rings of the supporting frame. *'These definitions of the essential characteristics of the invention have been included in the claims by the amendments aforesaid, and said claims are, therefore, believed to be allowable.'* (Italics the Court's.)

"Not only is this a most emphatic statement by the patentee of what he considered to be the precise nature of his invention and the proper scope of his claims, bringing him clearly within the doctrine that that which is not claimed must be considered as abandoned and the scope of the claims limited to their plain intended purport, but coming as it did at the end of repeated rejections of the original claims on reference, it also brings the patentee within the estoppel by amendment, so clearly defined recently by the Supreme Court in I. T. S. Rubber Co. *v.* Essex Rubber Co., 272 U. S. 429, 443. And the patent in suit has been so restricted to the specific structure in the prior litigation thereon. (See Judge CAMPBELL in the Sylo case, 11 Fed [2] 422, and Judge THACHER in the Western Electric case, 20 Fed. [2] 150.)"

Again, Judge BOURQUIN in the *Rola* case (27 Fed. [2] 758), stated (at p. 760):

"To avoid rejection and to secure allowance of claims for a tympanum represented to be necessarily in excess of nine inches in minimum diameter, Hopkins represented, insisted and demonstrated the necessity, that therein was his discovery and invention, that it was of the essence and essential to success, was what enabled direct regeneration of sounds, must be employed, attains novel results, and was an essential characteristic of his invention.

> "Representations in these circumstances made to secure patents, narrow the grants, operate as disclaimers and limitations, and as such are to be given effect. Made then, they cannot be repudiated now. (Cases cited.)
>
> "*Hopkins taught that only tympanums exceeding nine inches would function*, in consequence of which all the field below that figure was left open to other experimenters, discoverers and inventors. *He made a particular size material.*"

To the same effect is the decision of the Court of Appeals for the 9th Circuit.

If, as the Hopkins patent represents, and as the various Courts have held, a tympanum in excess of 9 inches in diameter is the *essential* characteristic of the Hopkins invention,—is, in fact, the *essence* of the invention,—that dimensional limitation, of necessity, must be present in Claims 4 and 8, either expressly, or by implication.

As stated in *Walker on Patents*, Sixth Edition, Vol. 1, page 313:

> "Where the claim ascribes a function to any of the things which it specifies, that ascription is a limitation of that claim."

That has been the law since at least the date of the decision of this Court in *Consolidated Roller Mill Co.* v. *R. R. Walker*, 138 U. S. 133. Thus, where, as here, limitation in size has been advanced as the *essence* of the invention, any claims drawn to describe that invention must be considered as being limited thereto.

That is especially so in this case because in Claims 4 and 8 it is stated that the tympanum is "*of sufficient area*" to produce satisfactory sound waves, when vibrated. The patent states that this result can be secured *only* if a tympanum exceeding 9 inches in diameter is employed

(p. 2, line 79, Rec. p. 318). This language, therefore, imparts the 9-inch limitation to Claims 4 and 8 as expressly and explicitly as though numerical figures had been employed.

7. Irrespective of the dimensional limitations, Claim 4 includes as an element.

> "a light tympanum freely exposed to unconfined air."

Claim 8 contains the same limitation, expressed in slightly different language. Because of the fact that the vibratile sound producing elements of the Fada loud speakers are *not* exposed to "unconfined" air, it makes it necessary to ascertain what is meant by that expression.

Referring to the file wrapper of the original application, on page 1 thereof, it is stated (Rec. p. 327):

> "This invention relates to instruments which reproduce sounds, such as the talking machine and the phonograph, and is particularly directed to the attainment of a direct propagation *in free air from a record* of self-sustaining sound waves, as distinguished from an initial generation of violent air disturbances in a confined space, and a subsequent transformation of such disturbances into self-sustaining sound waves by means of the megaphone or trumpet, commonly employed with most existing machines." (The italicized words were added by amendment to distinguish from prior art.)

Substantially the same language appears in the patent as issued (p. 1, line 12, Rec. 317).

Page 2 of the specification as filed recited (Rec. p. 328):

> "It is an object of the present invention to regenerate the recorded sounds directly from the record, *without the interposition of a confined body*

> *of air* or (this word 'or' was changed by amendment to read 'and without') the employment of a restrictive transformer, such as a horn."

Substantially the same language is incorporated in the patent as issued (p. 1, line 67, Rec. p. 317).

Page 4 of the specification as originally filed (Rec. p. 330), at the end of the brief description of the figures of the drawings, starts at once to describe the enclosure for the cone as being a bottomless structure provided with apertures in all sides

> "which afford substantially uninterrupted air paths for the sound waves from the interior of the cabinet in all directions laterally to the surrounding atmosphere."

Substantially the same language is incorporated in the patent as issued (p. 2, line 11, etc., Rec. p. 318).

In the amendment filed December 5, 1913, the following statement was made (p. 6 of the amendment, Rec. p. 358):

> "With machines having sound boxes and horns, it is not material that the cabinet has apertures on all sides, as set forth in claim 1; nor whether it has no bottom as set forth in claim 2. On the other hand, *it is of great importance* that the cabinet, which contains a direct sound regenerating machine having a diaphragm which impresses its vibrations upon unconfined air, shall have an aperture leading to the surrounding atmosphere, as in claim 3; having no bottom, as in claim 2, or having apertures on all sides serving for free path for the sound waves from the compartment containing the regenerator to the surrounding atmosphere, as in claim 1. In machines having sound boxes and horns it is only required that the horn communicate with the outside atmosphere."

Again, on page 11 of the same amendment (Rec. p. 363), it is stated with respect to the structures of the prior art:

> "With reference to claim 28 rejected on Simon, Miller or Rosenthal, it will be noted, as was stated with reference to claims 1 to 3, that the references are all sound box machines which require horns to regenerate the sound waves, and in such structures it is not material whether or not the cabinet is bottomless and has apertures in all of its sides for affording free paths for sound waves to the surrounding atmosphere, as set forth in claim 28, *but it is of importance in a direct sound regenerating machine, for the success of such a machine is dependent upon the free vibration of a large diaphragm in unconfined air.*"

Thus, it will be seen that not only has Hopkins shown and described his device as being freely exposed to unconfined air, but, as pointed out in his specification, and in his presentation to the Patent Office, this is also an *essential* factor with his device.

The Court of Appeals for the 2nd Circuit in the *Western Electric* case (16 Fed. [2] 10), commenting on this limitation, stated (at p. 11) that Hopkins

> "says that when he referred to confined air, in his patent, he meant that there is an enclosure in which the air is being operated on is surrounded by walls and by limiting his invention to 'freely exposed to unconfined air,' he was distinguishing between sound box construction in which the air is confined, or partially confined against the rear side of the diaphragm."

The Fada loud speakers, as distinguished from being positioned so as to be freely exposed to unconfined air, are designed to be located in a cabinet, viz., either the

cabinet of the radio console, or in a separate loud speaker cabinet. The cabinet is specifically provided for a definite purpose. It serves as a resonance chamber and increases the mellow, tonal qualities of the reproduced sound (Rec. p. 53). In other words, *petitioner deliberately locates its vibratile tympanum in a resonance chamber of confined air* so as to secure decidedly beneficial effects. The Hopkins patent, on the contrary, specifies that his device must be *freely exposed to unconfined air*, and points out that detrimental effects will be obtained unless this is done. This again emphasizes the radical differences that exist between the Hopkins invention and the Fada loud speakers.

Summary and Conclusion on the Question of Infringement.

The foregoing discussion of this subject may be summarized in the following brief statements:

(1) The Fada structures do not employ what the patent points out is the *essence* or *essential characteristics* of the Hopkins invention

(2) The Fada structures do not employ *a tympanum rigidly supported at its periphery* (all of the claims).

(3) The Fada structures do not have a tympanum exceeding 9 inches in diameter (expressly in Claims 1, 2, 3, 5, 6 and 7, and inferentially in Claims 4 and 8).

(4) The Fada structures do not employ a tympanum formed in *portions*, one of which is a plane peripheral rim, and the other of which is conical (all of the claims).

(5) Hence, in the Fada structures, there is no dimensional proportion between the conical *portion* and the other portion (all of the claims, except Claim 8).

(6) The Fada structures do not have a cone, the altitude of which is substantially one-quarter of the diameter of its base (Claims 3, 6 and 7).

(7) The Fada structures do not have a support with a circular aperture exceeding nine inches in diameter (Claims 5, 6 and 7).

(8) The Fada structures do not have a tympanum of light vibratile sound reproducing material "of sufficient area" (specified in the patent specifically as 9 inches) to impart to the surrounding free air sound waves substantially corresponding in intensity to the original sound waves (Claims 4 and 8).

(9) The Fada structures are not used or designed to be used so that the tympanum is freely exposed on all sides to unconfined air (Claims 4 and 8).

It is submitted, therefore, that neither of the Fada structures infringes any claim of the Hopkins patent, irrespective of the validity thereof.

The Decision of the Third Circuit Court of Appeals On the Question of Infringement.

With lack of infringement of the Hopkins claims by the Fada structures so obvious, the question naturally arises,—what considerations influenced the Court of Appeals for the Third Circuit in rendering a decision which the District Court of Delaware in the present case regarded as precluding its independent judgment on the question?

In the Third Circuit case (*Lektophone* v. *Brandes*) there were two structures before the Court under the charge of infringement. This fact was apparently overlooked by the Court of Appeals in arriving at its conclusion because *only one form of structure is mentioned in its opinion.* The only structure which is referred to in the Court's opinion has an elongated or oval shaped cone member *exceeding 9 inches in diameter in one dimension.*

All that was said in the Court's opinion on the question of infringement was as follows (20 Fed. [2], at p. 155, at p. 157):

> "Briefly stated, we find infringement on the part of the defendant. While the form of Hopkins circular zone (evidently a misprint for "cone") is not precisely duplicated by defendant's elongated oval board, *yet in area and sound functioning it is appropriated and reproduced.*"

Thus, it will be seen that in rendering its opinion, the Court of Appeals quite obviously did not have in mind the second Brandes loud speaker that was before it under the charge of infringement. The second Brandes loud speaker was provided with a *circular* cone, *less than 9 inches in diameter.* It is our belief that it was because of this latter fact that the District Court of Delaware felt itself to be precluded from rendering its independent opinion on the question of infringement.

Quite obviously, the fact that there was before the Court of Appeals for the Third Circuit a speaker having a cone less than 9 inches in diameter, and hence not within the Hopkins claims, was not called to the attention of that court. If, contrary to our belief, this fact was called to its attention, the Court, in arriving at its conclusion, and certainly in writing its opinion, completely lost sight of the

second cone structure before it. In any event, the Court did not mention it in its opinion, and the statements made in its opinion could not accurately apply to the second Brandes loud speaker. If, by any interpretation, the opinion of the Court of Appeals for the Third Circuit can be construed as applying to both of the Brandes loud speakers, then the opinion is most obviously in error.

THIRD POINT.

The Hopkins Patent Is Invalid Because of Anticipation and Want of Invention.

It is believed to be unnecessary to go very deeply into this defense. The opinions of Judge HICKENLOOPER, Judge BOURQUIN and the Court of Appeals for the 9th Circuit cover this subject very fully and carefully.

Therefore, only a very brief review of the prior art of record will be made.

Maxwell Patent No. 216,051 (Rec. p. 473):

This patent shows a cone shaped vibratile diaphragm for sound reproduction. The diaphragm is made of "sheep-skin or other animal membrane" of "from seven to eight inches in diameter" stretched taut and used as a direct transmitter and/or receiver.

Dann & Lapp Patent No. 388,660 (Rec. p. 476):

This patent shows the use of a cone of light vibratile sound reproducing material. It will be noted that the cone is not only freely exposed to unconfined air, but is rigidly supported at its periphery, and is shaped out of one piece so as to form a conical portion and a plane peripheral portion.

Stroh British Pattent No. 3393 of 1901 (Rec. p. 480):

The device of this patent was used for a great many years in connection with violins for phonograph recording. One of the original Stroh violins is in evidence in this case and will be demonstrated to the Court. It employs a cone shaped diaphragm freely exposed to unconfined air and shaped out of a single piece of vibratile material so as to have a plane peripheral portion, as well as a conical portion.

Kraemer Patent No. 890,142 (Rec. p. 483):

Attention is called to the Kraemer patent principally because of the fact that a *frustrum* of a cone is employed as the light vibratile tympanum, as in the Fada structures, rather than a *cone* as specified in all of the claims of the Hopkins patent. The Kraemer patent was cited by the Patent Office against some of the claims of the Hopkins patent, and on page 9 of the amendment filed December 26, 1913 the following remarks were made by Hopkins (Rec. p. 361):

> "With respect to Claim 15, *there is no apex to the diaphragm of Kraemer, No. 890,142*, the plate 16, Fig. 3, being secured to the flat central portion of the diaphragm, *which is not a cone as in applicant's construction, but is a frustrum of a cone with a flat top*, which is considerably larger than the metal plate 16. With a diaphragm of this kind, the center will yield and produce local disturbances. *Furthermore the connoidal portion of the Kraemer device, not terminating in an apex, and the plate 16 not reaching to the connoidal portion, the connoidal portion will not be moved bodily* to the same extent as would be the case if the metal plate were secured to an apex as in applicant's construction."

Lumiere Patents Nos. 986,477 and 1,036,529 (Rec. pp. 486 and 497):

The structures of these patents, it will be noted, are for the identical purpose as that of the Hopkins patent, namely, as a sound reproducing device for phonographs. It will be noted that the paper diaphragm is mounted so as to be freely exposed to unconfined air. It will likewise be noted that Claim 21 of patent No. 1,036,529 refers to the diaphragm as a double *cone* (Rec. p. 507, line 50). The diaphragms of the Lumiere devices were larger in diameter than 9 inches, and about 48,000 of the Lumiere devices were sold by the Victor Company (Rec. p. 85).

English Patents Nos. 1,064,062 and 1,192,289 (Rec. pp. 509 and 515):

These patents show a cone shaped diaphragm made of paper and used as a sound reproducing device.

Elfering Patent No 1,182,078 (Rec. p. 520):

This patent shows a cone shaped out of one piece of vibratile sound reproducing material so as to have a cone portion and a plane peripheral portion.

Brown British Patents Nos. 29,833 of 1910 and 1,157 of 1911 (Rec. pp. 523 and 528):

These patents show a cone made of light vibratile sound reproducing material shaped out of one piece of material to form a cone portion and a plane peripheral portion.

Article by Starling & Cole in "The Talking Machine News" of July, 1907 (Rec. p. 541):

This article shows and describes in considerable detail a paper cone used as a sound reproducing device on a phonograph. The diameter of the paper cone is given as 8 inches.

Watts & Maxwell Patent No. 237,712 (Rec. p. 547):

Here, the sound reproducing device is shown as a cone shaped out of "sheep-skin, for instance" (p. 1 of the patent, line 71, Rec. p. 548) so as to form a cone portion and a plane peripheral portion.

The Limitation of Size.

A good many of the patents hereinabove briefly reviewed, show cone structures of sizes less than 9 inches in diameter. This, of course, is not true with respect to the Lumiere structures which employ a diaphragm in excess of 9 inches in diameter. The Starling and Cole cone employs a cone 8 inches in diameter. As compared to the Fada structures (Rec. 451) the diameter of the large size Fada speaker is ½ inch larger than that of Starling and Cole, and the diameter of the small Fada speaker is 1 inch *smaller* than the Starling and Cole cone. It may be of interest, therefore, to ascertain from the mouth of Hopkins himself why the 9 inch limitation was inserted in the claims of his patent and asserted in the patent specification as the *essential* feature of his invention. Mr. Hopkins (who, incidently, was a patent attorney of fourteen years' experience at the time his application was filed, XQs37-41, Rec. p. 223) was cross examined on that point beginning at XQ121 (Rec. p. 239) and we call particular attention to XQ136 (Rec. p. 243) where his previous testimony in the *Western Electric* case was read to him and he adopted it, with slight modification, in the present case. Particularly significant is his language (Rec. p. 244):

> "Now, we had to arrive at something in that dark age and we did not have very much encouragement from either the Patent Office or anybody else, and it was a mighty difficult proposition *and the reason*

for choosing that size was that we were made to choose it. We did not want to choose it, we were made to choose it by people hollering about a whole lot of little diaphragms that were previously used and did not do this thing.

"Now, we were caused to choose the minimum size. Where there are little diaphragms, which are one thing, and big diaqhragms, which are other things, there must be a line of demarcation drawn and we had to draw it, and when we drew it we made that size. We may have cheated ourselves or we may have taken more than was our due."

Finally, on the matter of size of the tympanum, we call attention to the cross examination of the patentee Hopkins beginning at RXQ321 to the end of his testimony—RXQ335, Rec. page 282). From this it was seen that there is no critical size for the cone until *17 inches in diameter* is reached. In other words, the only difference between a small cone (one inch or more in diameter) and a larger cone up to 17 inches in diameter, is one of size, or, legally speaking, degree. A 2 inch cone is better than a 1 inch cone; a 3 inch cone is better than a 2 inch cone; a 17 inch cone is better than a 16 inch cone. Therefore, it is apparent that Hopkins, in going to the Patent Office and representing that he had made an invention of critical dimension, perpetrated a fraud upon the Patent Office and upon the public. Thus, wholly apart from the proposition that having limited his patent specification and claims to dimensional features, he has limited his monopoly thereto, the patent is wholly invalid because of his fraudulent misrepresentation as to the *essence* of his invention. In any event, the invention is wholly wanting in patentable novelty, because it differs from the prior art, if at all, only in dimension.

As stated by Judge BOURQUIN in the *Rola* case (27 Fed. [2] 758, at p. 761):

> "Brown (referring to Brown's British patent 29,833, Rec. p. 523) had taught, if the obvious needs teaching, that increase in size would increase volume or loudness."

The Decision of the Third Circuit Court of Appeals On the Question of Validity.

It might be well to point out that the Third Circuit Court of Appeals did not have before it the testimony of Hopkins, given under cross examination beginning at RXQ321, Rec. page 282, above referred to. It is probable that the same conclusion would not have been reached by the court had such testimony been available to it.

Let us see, however, what considerations influenced the Court of Appeals to reverse the decree of the New Jersey District Court that the patent was invalid, and find validity therefor.

We believe that we will convince this Court that the Third Circuit Court of Appeals was led into four fundamental errors of fact on which it predicated its decision. These errors are as follows:

> 1. The Court was under the impression that Hopkins was the first to point out that "blasting" in vibratile diaphragm sound reproducing devices could be prevented by rigidly clamping the peripheral edge of the vibratile element.
>
> 2. The Court stated that the prior Lumiere device shown in the prior Lumiere patents (Rec. pp. 486, 497), though adopted by a large commercial concern, namely, the Victor Talking Machine Company, never passed into approving public use.

3. The Court was influenced by the noted fact that the Victor Company, which owned the Lumiere patents, was using a loud speaker device manufactured by the General Electric Company under license from the Lektophone Corporation under the Hopkins patent in suit.

4. The Court was of the opinion that the cone portion of the Hopkins tympanum moved *bodily*, on a new principle of operation, and in this respect it differed from the cone sound reproducing devices of the prior art.

It is our belief that the Third Circuit Court of Appeals predicated its conclusion of validity on the foregoing facts, and we will now point out the error of the Court with respect to each thereof.

1. Blasting.

The opinion of the Court of Appeals for the Third Circuit, on the subject of blasting, recites (20 Fed. [2] 155, at p. 156):

> "As we understand the action of the cone in free air, waves of different frequency are shed or emitted from the cone at various zones; *that is to say, all the high frequency waves pass off into the open air near the apex of the cone, and as the waves become of lower frequency they will not pass off except from the farther out edges of the cone.*"

In other words, the Court was led to believe that in the Hopkins loud speaker device, the notes of high pitch emanate only from or near the apex of the cone, and the notes of low pitch emanate only from the peripheral edge of the cone. This understanding, necessary to the Court's conclusion of validity of the Hopkins patent, is scientifi-

cally erroneous (Q208, Rec. p. 99). As is visibly demonstrated by sand patterns of the vibratile member of both Lektophone loud speakers and Fada loud speakers, it is apparent that all frequencies, *i. e.*, all tones emanate from *all* portions of the vibratile material throughout its area (Rec. p. 557; see also Petitioner's physical exhibits).

The opinion of the Third Circuit Court of Appeals continues:

> "In order, therefore, to send out these waves of low frequency the volume of sound must be increased, with the result that as these low frequency waves are emitted near the outer edges of the cone its edges begin to weave or flutter, and set up an independent motion of their own. This is termed blasting and is highly objectionable. *Now it seems to us that Hopkins was the first to point out that this blasting effect caused by the local vibrations at the edge of the cone would be prevented* and the cone held restricted to vibrations as a whole and the weaving prevented by the expedient of using a rigid frame and making a liaison between the edges of the cone and the clamp of the rigid frame by a flexible yielding liaison belt which vented and thereby prevented the obnoxious fluttering of a cone's edges not rigidly held."

In this the Court of Appeals was also misinformed. The phenomenon of "blasting," *i. e.*, fluttering, or weaving of the peripheral edge of the cone, is something that is *not mentioned or even remotely suggested in the file history of the Hopkins patent or in the patent itself.* Furthermore, it is something that was not mentioned or remotely suggested by or in behalf of Hopkins or the Hopkins patents in the testimony of both the *Sylo* and *Western Electric* suits (Hopkins XQ105-XQ109, Rec. pp. 233-238). The "blasting" phenomenon was merely the ingenious "inven-

tion" of counsel for Hopkins, made long after the Hopkins patent issued, *and after two trials had been had in litigations involving the patents.*

While the "blasting" phenomenon is not mentioned or suggested by the Hopkins patents and their file histories, it is fully described and cured in many instances of the prior art.

For example, as stated by Judge HICKENLOOPER in the *Crosley* case:

> "Even if the Hopkins patent can be read as teaching that the base of the cone must be restrained against weaving, fluttering or forming loops and nodes, in order to produce a satisfactory result, *Hopkins was not the first to so teach.* This teaching is clearly disclosed by Stroh (British Patent 3392—1901) and the practice of so restraining the base of the conical portion of the diaphragm was employed and the subject of patent publication by English, Brown and others, including Lumiere, without detailed reference to the function of such annulus or plane rim. *We cannot concur in the apparent opinion of the Court of Appeals of the Third Circuit (Brandes case) that 'Hopkins was the first to point out that this blasting effect, caused by local vibrations at the edge of the cone, would be prevented and the cone restricted to vibrations as a whole, and weaving prevented by the expedient of using a rigid frame and making the liaison between the edges of the cone and the clamp of the rigid frame by a flexible yielding liaison belt'. Stroh specifically taught this but not Hopkins."*

We will not quote from the patents referred to by Judge HICKENLOOPER in his opinion. Verification of the accuracy of Judge HICKENLOOPER's statements, however, may be readily obtained upon reference to the patents as reproduced in this record. (See for example, Stroh patent,

lines 20-31, Rec. p. 480; Lumiere patent, lines 58-76, Rec. p. 491.)

Thus, it will be seen that the Third Circuit Court of Appeals based its conclusion of validity for the Hopkins patent on an erroneous premise.

2. Lumiere Reproducer Not Commercial.

On the question of the value of the Lumiere disclosure as an anticipation of the Hopkins patent, the Court apparently ignored the legal effect of the publication of the disclosure of the Lumiere patents, because it was erroneously led to believe that the Lumiere patents were mere "paper" patents, and the structure shown and described therein was of no commercial utility. On this subject, the Court of Appeals for the Third Circuit said in its opinion (at p. 156):

> "Such being Hopkins' disclosure, we next turn to the basic question on which the Court below decided the case, namely, whether Hopkins' disclosure was anticipated by Lumiere in his patents Nos. 986,477 and 1,036,529 of 1912. *It is a significant fact that although Lumiere's device was adapted* (adopted) *by such a strong company as the Victor, it has never passed into approving public use*, and that company itself is using a cone which the General Electric Company makes as licensee under Hopkins' patent."

Here, again, the Court was in error as to the facts, probably due to the insufficiencies of the record before it. It has been proven in the record of this case by the deposition of Edward K. MacEwan, Secretary of the Victor Talking Machine Company (Rec. pp. 75 *et seq.* and 84 *et seq.*) that the Lumiere device was adopted in 1908 or 1909 (Rec.

p. 75); was still being manufactured for use as a loud speaker for a radio receiving set in 1925 (Rec. p. 79); and up to 1926, when the manufacture of the Lumiere device was discontinued, *about 48,000 Lumiere devices had been sold to the public* (Rec. p. 85). Irrespective of what evidence was before the Court of Appeals for the Third Circuit on which to predicate its opinion above quoted, the real facts are established by incontrovertible testimony in the present case, as above set forth. These facts establish the absolute erroneousness of the premise on which the Court's opinion was based.

3. Victor Company Using Loud Speakers Licensed Under the Hopkins Patent.

In the above quoted portion of the opinion of the Third Circuit Court of Appeals, it will be noted that it is stressed that the Victor Company is using a cone manufactured by the General Electric Company, licensed under the Hopkins patent. The true facts with respect thereto are established in this record, for the first time we believe, through the testimony of Mr. MacEwan, (Rec. p. 84), and the testimony of Selden T. Williams, formerly Production Engineer, Chief Engineer, General Superintendent, and Works Manager of the Victor Talking Machine Company (Rec. p. 86). The fact that the General Electric Company was licensed under the Hopkins patent was something with which the Victor Company was not concerned in contracting with the General Electric Company to supply the Victor Company with the apparatus it required (Rec. p. 91). The *controlling* factor was that the Victor Company was not manufacturing electrical instrumentalities (Rec. p. 88). The loud speakers acquired by the Victor Company from the General Electric Company included a complete

electrical amplifying assembly, the total cost of which was many times the cost of the cone sound reproducer. The cone sound reproducing element was only one part of an enormous electro-mechanical assembly. Indeed, it was the smallest, most insignificant and inexpensive part of the entire assembly. Furthermore, all of the mechanical parts of the electro-mechanical assembly had to be very accurately and scientifically balanced (Rec. p. 90). The pamphlets of the Victor Company, showing and describing the complete electro-mechanical instrumentalities, are reproduced in this record at pages 513 and 514. The actual physical apparatus, schematically depicted in these bulletins, will be shown to the Court at the argument of the cause.

It is quite apparent that the Victor Talking Machine Company, not equipped to manufacture complicated, expensive, electrical apparatus, and with no experience in the manufacture thereof, most logically contracted with the General Electric Company, who not only had many years' experience in the manufacture of such instrumentalities, but was equipped to supply the Victor Company with such complicated mechanism in the desired quantities. As above stated, these conditions were the controlling considerations, and the Victor Company was not concerned with the most insignificant, inexpensive item of the assembly, viz: the cone loud speaker. These established facts, we submit, take completely away from the case the inference raised by the language of the Third Circuit Court of Appeals with respect thereto, and conclusively show that the record in this case precludes any such inference.

It will likewise be noticed that the Court of Appeals followed the above quoted portion of its opinion with the statement:

> "But apart from Lumiere's patents having attained no position in the practical art, *it is quite clear that he had no conception of that which constituted the gist of Hopkins' invention.*"

As noted above, in a previously quoted portion of its opinion, the *gist* of the Hopkins invention was stated by the Court to be that *Hopkins was the first to point out the blasting effect and its cure.* Here, again, the Court was in error. Lumiere patent 986,477 (Rec. p. 490) says (Rec. p. 491, p. 1 of the patent, line 58 *et seq.*):

> "The invention consists in a diaphragm for acoustical instruments, having one or more freely resilient, sound responsive surfaces or elements, which have been brought into a condition of molecular stress, *of an aggregate superficial area substantially larger than the surface of a plane disk of the same diameter,* and in a recorder or reproducer in which said diaphragm is mounted.
>
> "It is found that the effect of bringing the surfaces of a vibrating body into a condition of molecular stress by torsion, is to reduce to a minimum the tendency of the vibrating body to form nodes during operation, *so that the surface or surfaces of the diaphragm will vibrate as a whole and will not produce the disagreeable effect which is technically known as blasting or shattering.*"

Thus, it is seen that this premise of fact, on which the opinion of the Court of Appeals for the Third Circuit was based, is shown to be absolutely erroneous by the present record.

4. The Bodily Movement of the Hopkins Cone.

We have shown, hereinabove, that the Court of Appeals for the Third Circuit was of the opinion that the Hopkins

cone moved *bodily*, or like a plunger, as Hopkins testified (XQ105, Rec. p. 233), in order to regenerate sound waves, as distinguished from the prior art where wave vibrations throughout the surface of the cone effected the regeneration of the sound waves. This conclusion was based on the statement in the Hopkins patent in suit (Rec. p. 318, line 112):

> "The conical shape is given the tympanum so that shocks or vibrations impressed upon the apex of the cone in a direction towards its base *will move the cone bodily*, the strains being imparted edgewise of the material and no wave motions being set up in the thin material of the cone. The curvature of the walls of the cone *precludes the setting up of waves in the material;* and the intended object, *a simultaneous movement of the whole conical portion of the tympanum*, is thus attained."

The Hopkins patent and the Court of Appeals for the Third Circuit, must be either right or wrong in this theory of operation, which was accepted by the Patent Office as distinguishing the Hopkins speaker from the prior art. If Hopkins and the Court of Appeals are right, then the Fada structures cannot infringe, because, as was visibly established during the trial of the case, and as is established by the sand patterns* which will be shown this Court, *the cone frustrums of the Fada loud speakers do not move bodily, but vibrate throughout their entire area to regenerate sound waves.* If, on the other hand, Hopkins and the Court of Appeals are wrong on the theory of operation of the device, (and it is our belief that they are), then the theory which differentiated Hopkins from the

* Defendant's Exhibits 31 to 37 showing the effects produced in the Fada paper diaphragm in the production of notes varying from 120 cycles to 6,400 cycles per second (*i.e.*, usual sound frequencies).

prior art, and secured the issuance of his patent, is fallacious, and the patent is invalid; with the result that one of the major factors on which the Court of Appeals predicated its decree of validity of the patent is fallacious, and the opinion of the Court of Appeals in error.

From the foregoing, we submit that the opinion of the Court of Appeals for the Third Circuit, sustaining the Hopkins patent as valid, is entitled to little consideration in the present case because, as we have established, it was based on errors of facts, misunderstanding, or lack of understanding thereof which may have been justified by the record before it, but for which there can now be no justification in view of the record in the present case.

CONCLUSION.

We therefore submit:

(1) The Hopkins patent is invalid

(a) Because of violation of the provisions of Section 4897 of the Revised Statute.

(b) Because of anticipation by and want of patentable invention over the prior art.

(2) The Hopkins patent, if valid, is not infringed by either of the Fada structures.

It is therefore urged that this Court direct the Circuit Court of Appeals for the 3rd Circuit to reverse the judgment of the District Court for the District of Delaware.

Respectfully submitted,

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Dated, New York, N. Y.,
September 29, 1930.